

We claim:

1. A method for inhalation of a dry powder drug comprising:
5 providing a dry powder drug composition comprising particles comprising
a lipid matrix and a particle size of 1-30 microns, mass median aerodynamic diameter of
less than 5 microns, and bulk density of less than 0.5 g/cm^3 ;
loading the composition into a passive dry powder inhaler; and
10 inhaling the drug composition from the inhaler resulting in an emitted
dose substantially independent of device resistance and lung deposition substantially
independent of inhalation flow rate.

2. A method according to claim 1 wherein the emitted dose is at least

60%.

3. A method according to claim 2 comprising an emitted dose of at

least 80%.

4. A method according to claim 1 comprising a FPF_{4+F} of at least

60%.

5. A method according to claim 1 wherein the lipid comprises a
phospholipid selected from the group consisting of dipalmitoylphosphatidylcholine,
distearylphosphatidylcholine, diarachidoylphosphatidylcholine
25 dibehenoylphosphatidylcholine, diphosphatidyl glycerol, short-chain
phosphatidylcholines, long-chain saturated phosphatidylethanolamines, long-chain
saturated phosphatidylserines, long-chain saturated phosphatidylglycerols, and long-chain
saturated phosphatidylinositols.

6. A method according to claim 1 wherein the inhaler comprises a
30 resistance of less than $0.60 (\text{cmH}_2\text{O})^{1/2} / \text{L min}^{-1}$.

7. A method according to claim 6 wherein the inhaler comprises a resistance within the range of $0.01 - 0.30 \text{ (cmH}_2\text{O)}^{1/2} / \text{L min}^{-1}$

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~~Sub~~
~~A2~~

8. A method of claim 1 wherein the inhalation flow rate is less than about 90 L/min.

9. A method of claim 8 wherein the inhalation flow rate is within the range of about 10 – 60 L/min.

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10. A method of claim 9 wherein the inhalation flow rate is within the range of 12 – 45 L/min.

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~~A3~~
25%.

11. A method of claim 1 wherein the lung deposition is greater than

12. A method according to claim 1 wherein the lung deposition is greater than 30%.

13. A method according to claim 1 wherein the lung deposition is greater than 50%.

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14. A method according to claim 1 wherein the drug is selected from the group consisting of budesonide, tobramycin sulfate, leuprolide acetate, Amphotericin B, and PTH.

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15. A method of claim 1 wherein the powder comprises hollow porous microparticles.

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16. A method for inhalation of a dry powder drug comprising:
providing a dry powder drug composition comprising a hydrophobic
active agent, said composition comprising particles comprising a lipid matrix and a

particle size of 1-30 microns, mass median aerodynamic diameter of less than 5 microns,
and bulk density of less than 0.5 g/cm³;

loading the composition into a passive dry powder inhaler;

inhaling the drug composition from the inhaler in order to achieve a Tmax

5 within 15 minutes of the inhalation.

17. A method according to claim 16 wherein the active agent is
amphotericin B.

10 18. A method according to claim 16 wherein the active agent is
budesonide.

19. A method according to claim 18 wherein T max is achieved within
10 minutes of the inhalation. ✓

15 20. A method according to claim 16 wherein the lipid comprises a
phospholipid selected from the group consisting of dipalmitoylphosphatidylcholine,
disteoylphosphatidylcholine, diarachidoylphosphatidylcholine
dibehenoylphosphatidylcholine, diphosphatidyl glycerol, short-chain
20 phosphatidylcholines, long-chain saturated phosphatidylethanolamines, long-chain
saturated phosphatidylserines, long-chain saturated phosphatidylglycerols, and long-chain
saturated phosphatidylinositols.

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